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the permissible immigration from any particular land will naturally increase decade by decade. The newcomers, however, being always kept at a small percentage of those already Americanized, the objections to and dangers from increasing immigration from those lands will be held at a minimum.

### CONCLUSION

Would not the above proposals for a Comprehensive and Constructive Immigration Policy coordinate, systematize and rationalize our entire procedure in dealing with immigration, and solve in a fundamental way its most perplexing difficulties? Such a policy would protect American labor from danger of sudden and excessive immigration from any land. It would promote the wholesome and rapid assimilation of all newcomers. It would regulate the rate of the coming of immigrants from any land by the proven capacity for Americanization of those from that land already here. It would keep the newcomers of each people always a minority of its Americanized citizens. It would be free from every trace of differential race treatment. Our relations with Japan and China would thus be right.

Such a policy, therefore, giving to every people the "most favored nation treatment," would maintain and deepen our international friendship on every side.

Criticism of this plan is invited. If the reader finds himself in harmony with this proposal a letter of endorsement would be appreciated.

## THE PRESENT ECONOMIC AND SOCIAL CONDITIONS AS RESULTS OF APPLIED SCIENCE AND INVENTION

By GEORGE W. PERKINS

**A**S recently as when our fathers were boys, Samuel W. Morse, from a room at 100 Washington Square East, New York City, flashed to the world the first message ever carried by electricity. That message was the query "What hath God wrought?" How prophetic was that query, in view of the stupendous revolution in social and industrial relations brought about since then by the use of electricity.

When miracles are mentioned our minds instinctively revert to the miracles chronicled in the Bible, and yet, with the possible exception of the raising of the dead, is there a miracle

recorded in the Scriptures that is more wonderful than the miracle of the telephone? It is a miracle of a very real, practical nature; a miracle that has revolutionized every detail of our present-day life, social, financial and industrial; a miracle that has annihilated space and brought the world so close together in its everyday relationships that we have become one small group of people, regardless of the hemisphere on which we live or the race to which we belong.

The revolution in business methods caused by the use of electricity has been so rapid and so complete as to cause bewilderment and consternation in the minds of a multitude of our people. They are fairly staggered by the mighty changes that have taken place, and I sincerely question whether they comprehend the fundamental cause of these mighty changes; and this lack of comprehension, in my judgment, is responsible for much of the unrest that permeates the world to-day. Multitudes of people engaged in their everyday affairs are seeing the results, feeling the results, without understanding the causes, for they have not been furnished by the men who have produced the causes with sufficient information as to the causes and the results which these causes are bound to produce.

The business men of the United States have been very properly charged with having been so engrossed in money-making during the last quarter of a century that they have given very little, if any, attention to public affairs; have given very little, if any, of their superb ability to public service, and have given nearly all of their ability to pursuing selfish ends, largely of a money-making nature. Much can be said to substantiate this charge, but, in my judgment, a similar charge can be made against the men of science. They have been so engrossed in the fascinating problems on which they have been working that they have taken little or no time to inform the public as to the practical effect that modern scientific inventions were bound to have on the everyday lives of our people. These inventions have been placed in the hands of the people of the world within the last third of a century, and their application to business and social affairs has overthrown and carried away a countless number of old practises and precedents. The result has been a mighty conflict between the old laws of man and the new laws of science. One or the other had to give way. As the man-made laws were the outgrowth of centuries of effort and cumulative human knowledge, it did not seem possible that anything could come into the world that would set all this cumulative knowledge and experience to naught, and do it overnight, as it

were. Such, however, is the actual situation, but a vast majority of the people of the world do not realize this, do not at all understand it. It is also true that even a large number of our more intelligent men have refused to accept the new conditions in which we live and have insisted on continuing under the old system, following old precedents and practises. As a result, a mighty conflict has engaged us and will continue to engage us until our people and the other peoples of the world realize that a mighty upheaval has taken place; that we have entered a new world of thought and action, dominated almost wholly by the discoveries of science within the last half century; that new codes of business morals, of finance, of industry are being set up, and that it behooves us all to give the best thought, the broadest vision, the most unselfish devotion to the erection of a new structure that will be in harmony with the modern economic needs of our people.

Who can be of more help in this great reconstruction period than the scientist? Should he not, in the present troubled and confused thought of the world, give of his thought and his time to the work of informing the people in simple, easily understood language as to what he has done to upset our old practises and customs? Should he not tell them wherein his work and accomplishments will be of benefit to the people and why? Should he not show them how impossible it is to follow old precedents and practises when he, the scientist, has by his discoveries and inventions completely wiped out old methods; when he, the scientist, has, through the miracles he has wrought, destroyed old tools and substituted new ones? Until the people as a whole fully realize this it is going to be most difficult to readjust our minds sufficiently to make us capable of rearranging our social and industrial practises.

The bitter conflict that has been waged in our country during the last twenty-five years between the old laws of man and the new laws of science has been caused by a lack of understanding on the part of our people as to what has been going on. I believe that a half century from now—yes, much sooner—our people will look back at the struggle in which we are engaged and marvel at our shortsightedness. They will look upon it then much as we nowadays look upon the witchcraft of early New England days.

For the last twenty-five years the scientist and the inventor have almost daily placed in the hands of the merchant and the manufacturer some new instrument or device that has made it possible for him to speed up his business and reach out and do

business at far distant points; some device that has made it possible for a single human mind to do infinitely more business than any human mind ever did before. As soon as the business men began to employ these devices, our old man-written laws of a quarter or half century ago were invoked to prosecute these men who as a matter of fact were simply using, in their practical everyday work, the discoveries of science and the instruments of the inventor.

How perfectly absurd it is to allow a man to invent a machine, to applaud and honor him for such invention, and the very next instant attempt to place behind the bars the business man who uses that invention. This is precisely what our country has been doing for a quarter of a century. The telegraph that Mr. Morse invented and the telephone that Mr. Bell invented have been acclaimed as the great discoveries of the age, and these men have been hailed everywhere as great benefactors of the human race; yet had it not been for these two inventions, how utterly impossible it would have been ever to have had an interstate corporation or a so-called trust. Our politicians have told us that the tariff made the trusts. They seem to have forgotten that while we have had a tariff in this country for more than a hundred years, we have only had large interstate corporations for a matter of thirty or forty years. Intercommunication, improved and developed through the use of electricity, has been the underlying cause of the great industrial interstate and international enterprises. Raise or lower the tariff as much as you please and leave modern intercommunication undisturbed, and your great interstate and international industrial unit of to-day would continue; but take away that strange force which we call electricity and your interstate and international business concern would fall to pieces in short order. The telephone, not the tariff, made the trusts.

Intercommunication is the first requisite for doing business. In our grandfathers' day there was no concern larger than that of the store owned and operated by one individual, for the simple reason that an ox or horse team could not go very far and they were the only methods of intercommunication. Intercommunication has rapidly improved, thanks to the marvelous work of the scientist and inventor, and as it has improved and extended business has grown from the individual to the firm, from the firm to the company, from the company to the great international corporation. The only way to stop this development, to set it back where it was in our grandfathers' day, is to eradicate the causes that have produced the results.

My plea is that our people be told all this in plain everyday language; that they be told it by you, the men who are so largely responsible for creating the cause that has produced the result. Until our people understand the fundamental cause, we are going to have a conflict of titanic proportions. A campaign of education is therefore imperative, for much that we learned in our youth must be consigned to the scrap heap, discarded altogether. We must learn new methods of thought and of action. In order to do this our people must have the facts. We can not expect them to readjust their thought and their action to such a great extent as they must without facts that are indisputable. Who can give them these facts better than the men who have created them—the scientist and the inventor?

Steam and electricity have been the great unifying forces in business. With their advent it became perfectly natural for men to reach out and command larger areas of trade, to have great practical visions of interstate and international conquest in trade. The people as a mass do not understand this. They almost feel that supermen have come into the world in the last quarter of a century, men of far greater mental ability than ever existed before. This of course is not true. The men of the last quarter of a century have accomplished what they have not because they were endowed by the Almighty with vastly better mental machines than their fathers possessed, but because they have been endowed by the scientist and the inventor with vastly better material machines than their forefathers possessed. If our grandfathers wished to talk to a man in the next block they had to put on their hats and go and hunt the man up. If a man living in Boston wished to talk to a man living in San Francisco he had to transport his body across the continent before he could do it. To-day all that is necessary is for you to turn in your chair, pick up a tiny instrument and command the voice of your friend whose body is on the other side of the continent, and his voice immediately sounds in your ear.

The Germans were the first people who had sufficient vision and courage to comprehend what mighty and practical changes the scientist and the inventor had wrought in business methods. They lost no time twenty-five years ago in shaping their future to be in keeping with the great new electrical age upon which the world was entering. They formed large trading companies and with great rapidity abandoned the old axiom "competition is the life of trade" and substituted the new slogan "cooperation

is the life of trade." With this slogan they went out for the trade of the world. At the same moment our country took exactly the opposite course and, through the passage of the Sherman Law, declared that competition was and must continue to be the life of trade.

Japan is another country that has lost no time in throwing off the customs and precedents of the past and entering the great new electrical world with broad vision and splendid courage. Witness what Japan has accomplished in less than half a century. She has cast off the customs and precedents of centuries and reached out with great eagerness for the newer and more advanced thought of the world. She has sent her best young manhood to the universities of all the civilized countries. She has sent commissions of her most able men to all points of the globe, that they might bring back the best thought and most advanced practises in social and business relations. For the last quarter of a century precedent has meant nothing to Japan. She has thought only of the matchless opportunities that are opening to the world because of universal education and vastly improved methods of intercommunication.

In both Germany and Japan the government has worked hand in glove with its merchants and manufacturers, leaving no stone unturned to make it clear to their people that the customs of their fathers and forefathers were things of the past and that new beliefs, methods and practises must take the place of old ones.

We pride ourselves on being a new country, a progressive country, free from the shackling influences of precedent. As compared with Germany and Japan and their accomplishments of the last quarter of a century we are an old benighted country. While both Germany and Japan have been reaching out into the future with new methods and practises our so-called statesmen and laws have tried to bind us hand and foot to an archaic past.

Fifteen years ago some of our business leaders with vision and courage attempted to organize the railroads of our great Northwest into one company, and planned to connect that railroad system on the Pacific coast with a line of steamships to Japan and China. Under an archaic law our government attacked the enterprise, declared it illegal and prevented its being carried out. The project was abandoned and the ships for the Pacific were never built. Later on the La Follette Law was passed, which effectually disposed of the few ships we had remaining on the Pacific Ocean, and to-day in place of our being

a potential factor in the carrying trade of the Pacific we are a negligible quantity, while Japan, whom many of our people still regard as an ancient nation, has forged ahead and practically taken possession of the carrying trade of the Pacific. All this is largely due to an utter lack of understanding on the part of our so-called statesmen and our people as a whole as to the great economic changes that have been brought into the world, not so much through the selfish desires of business men as through the potential achievements of science.

The modern commercial accomplishments of Germany are too numerous to mention, but the latest one of which I know is the creation in Berlin of what is known as a Federal Purchasing Bureau. I understand that hereafter when a merchant in Germany wishes to purchase some commodity that is to be procured outside of Germany he will be required to go to this purchasing bureau of the government and lodge his order. Take copper for instance: If the Germany copper merchants wish to buy copper they will each go to the government purchasing bureau and lodge their respective orders for, say, May copper. When the orders are all in this purchasing bureau will go out into the world to buy, say, fifty million pounds of copper. It will naturally come here, for we produce such large amounts of that metal. When it comes here it will find that our laws require that our copper merchants compete with one another in the sale of copper, while the German law requires that their merchants cooperate with one another in the purchase of copper. The method of Germany is, therefore, exactly the opposite of our method. Which is right? If Germany is right, then she is acquiring from us one of our most precious metals on terms very advantageous to her and very disadvantageous to us.

Twenty-five or thirty-five years ago, before science and invention had perfected electrical intercommunication, such arrangements as these did not and could not exist. But to-day they can and do. Not only this, but in the judgment of all thoughtful men they are but in their infancy, for science and invention are making stupendous strides in perfecting instantaneous intercommunication of thought and the more rapid transportation of our bodies and commodities from point to point. When this war shall have finished the conquest of the air will have been accomplished. The wireless will be a practical everyday instrument. The submarine telephone will doubtless be in operation, and international lines will then mean about as little as state lines mean now, all because of what science has accomplished.



Surely you men of science have vast accomplishments to your credit. You have reason to be exceedingly proud of a great record of achievement; but is it not high time that you did your bit by making it plainer to the people as a whole what your accomplishments mean to them in their work-day lives, making them understand that while you have destroyed an old order of things you have created a new and better order of things. Would it not be highly beneficial to our country if some of your meetings and discussions were given over almost wholly to the task of enlightening the people as to why it is that old methods must be discarded for new methods? Will you not give your splendid talents to plain talks with the multitude, for a great crisis confronts the world. It is the crisis of changing in a night, as it were, from the age of the ox team to the age of the flying machine. Certainly no such stupendous revolution has confronted the world in all its history, and unless our people can comprehend it all, can understand it all, they will not be qualified to deal with it in their homes, in their business and, above all, at the polls where representatives are selected by them to make new laws and discard old ones.

## THE FINANCING OF PUBLIC UTILITIES

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**A** FUNDAMENTAL factor on the economic side of the management of every public utility is that provision must be made for a constant supply of new capital.

When a new plant of a public utility has been completed, it has not been completed; in fact, its construction has just commenced. It would be a most exceptional situation if such a plant were finished before it had become necessary to consider and provide for additions to it. The communities which these utilities are serving, whether the utilities are local or more than local in their character, are constantly growing. This constant growth necessitates constant additions to the plant. The utilities can not stand still. Unless they go forward, they will go backward. It is absolutely essential not only to the public welfare and convenience, but also to the success of the utility itself that it meet these constant demands promptly. A failure to do this means inadequate and insufficient service